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Conference Abstract

BIOfid Steps Up to Provide Introduced Species Information: The case of myriapods in German greenhouses

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Abstract

The German Specialized Information Service Biodiversity Research (BIOfid) is an infrastructure that provides scientists with information tailored to the specific needs of biodiversity research and related disciplines (Koch et al. 2017). The service, in particular, promotes digital access to legacy literature and enables the retrieval of research-relevant data using natural language processing (NLP) and machine learning (ML) techniques (Hemati et al. 2016, Abrami et al. 2020, Lücking et al. 2021), and provides a customized semantic search engine (Pachzelt et al. 2021). Thus, historical species records can be found and help to estimate past and present species distributions as well as potential range shifts. Future BIOfid services are planned to specifically address interoperability and linking of research data for rapid integration into national and international databases such as the German Federation for Biological Data (GFBio) and the Global Biodiversity Information Facility (GBIF). To this end, for example, BIOfid will contribute to further developing the open-source virtual research environment (VRE) Scratchpads (Smith et al. 2011) and promote its usage in the scientific community.

Based on a use case on myriapods, we will test the ability of the two tools mentioned above to accelerate information retrieval and knowledge sharing by professional data mobilization and management methods. Certain myriapod species are known to have been

introduced from tropical and subtropical environments to Germany, a country that lies in the north temperate zone. In this regard, we will scour BIOfid´s legacy literature for these species to find spatio-temporal evidence. Moreover, we will explore the usefulness of Myriatrix, a Scratchpads instance specialized on Myriapoda and Onychophora, to collate information on millipede and centipede species introduced to German greenhouses. Data on 35 diplopod and 18 chilopod species in German greenhouses (Decker et al. 2014) have been integrated into Myriatrix using the "Taxon Description" content type provided by Scratchpads. Subsequently, more comprehensive, recent information on the millipede *Cylindrodesmus hirsutus* Pocock, 1889 (Martínez-Muñoz 2020 onwards) has been incorporated. Finally, we will show how this compiled information can be integrated into GBIF through the Scratchpads' Darwin Core Archive (DwC-A) export.

Keywords

biodiversity informatics, legacy literature, FAIR data, millipedes, centipedes

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References

- Abrami G, Stoeckel M, Mehler A (2020) TextAnnotator: A UIMA based tool for the simultaneous and collaborative annotation of texts. URL: https://aclanthology.org/2020.lrec-1.112.pdf
- Decker P, Reip H, Voigtländer K (2014) Millipedes and centipedes in German greenhouses (Myriapoda: Diplopoda, Chilopoda). Biodiversity Data Journal 2 https://doi.org/10.3897/bdj.2.e1066

- Hemati W, Uslu T, Mehler A (2016) TextImager: a Distributed UIMA-based System for NLP. URL: https://aclanthology.org/C16-2013
- Koch M, Kasperek G, Hörnschemeyer T, Mehler A, Weiland C, Hausinger A (2017) Setup of BIOfid, a new Specialised Information Service for Biodiversity Research. Proceedings of TDWG 1: e19803. https://doi.org/10.3897/tdwgproceedings.1.19803
- Lücking A, Driller C, Stoeckel M, Abrami G, Pachzelt A, Mehler A (2021) Multiple annotation for biodiversity: developing an annotation framework among biology, linguistics and text technology. Lang Resources & Evaluation https://doi.org/10.1007/s10579-021-09553-5
- Martínez-Muñoz CA (2020) *Cylindrodesmus hirsutus* Pocock, 1889. https://myriatrix.myspecies.info/myriatrix/cylindrodesmus-hirsutus. Accessed on: 2022-6-30.
- Pachzelt A, Kasperek G, Lücking A, Abrami G, Driller C (2021) Semantic Search in Legacy Biodiversity Literature: Integrating data from different data infrastructures. Biodiversity Information Science and Standards 5 https://doi.org/10.3897/biss.5.74251
- Smith V, Rycroft S, Brake I, Scott B, Baker E, Livermore L, Blagoderov V, Roberts D (2011) Scratchpads 2.0: a Virtual Research Environment supporting scholarly collaboration, communication and data publication in biodiversity science. ZooKeys 150: 53-70. https://doi.org/10.3897/zookeys.150.2193